The Veterinary Record.

(*Founded by William Hunting, F.R.C.V.S., 1888.*)

No. 47. NOVEMBER 20, 1926. Vol. 6.

Parturient Hæmoglobinuria of Bovines.*

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Parturient bovine hæmoglobinuria may be defined as an acute enzootic disease of female bovines occurring from a few days to several weeks subsequent to the act of calving, and characterised by hæmoglobinuria, hydræmia, oligocythæmia, icterus, and prostration. It is enzootic in the sense that, although not infectious or contagious, it occurs more or less regularly year after year in certain districts, and even on particular farms in these districts.

History.—The disease has been known in this country for upwards of a century, although its incidence has markedly fallen during the last decennium, chiefly, it would appear, owing to improved agricultural routine. Its occurrence is relatively common on crofts and on farms the soil of which is inherently poor. By many authorities the disease is alleged to have been imported from Texas, where a somewhat similar trouble is indigenous.

Etiology.—By many observers parturient red water is said to be a recrudescence of a pre-existing latent piroplasmic infection, due to a hæmosporidian parasite, the defensive mechanism of the animal organism being broken down by the debility associated with normal parturition, so that we have, in reality, an acute exacerbation of a latent piroplasmosis.

True British piroplasmosis is, as you are all aware, associated with vector ticks, some of which require three hosts for their development, whilst others belong to the one host group. These act as intermediate hosts for the hæmosporidian parasites and carry infection to fresh final hosts. Larval ticks may be born infected if the parent has fed on infected blood.

The piroplasms—so called on account of their piriform conformation—are, in British piroplasmosis, usually found in pairs in the red blood cells, attached at their narrow end by a relatively-long connecting link; hence the specific name *Babesia divergens* has been given to this protozoon.

The parasites are peculiarly specific, the disease of one class of animal being intransmissible to another class; they may be found in the blood intracellularly in small numbers, and are relatively scarce in the plasma, being there, indeed, only during their migration from one cell to another.

As piroplasmosis is essentially tick borne, it would appear necessary that susceptible bovines must either harbour the ticks or have been previously tick infested.

Now, on premises surrounding Aberdeen, where the disease might be said to be indigenous, there are no so-called tick pastures, and on many of the crofts where the disease appears, the affected animal has been there since birth, and may also have had one or two previous uneventful calvings, so far as red water is concerned. On red water farms, difficult parturition and red water do not go together, as one would expect if there were any truth in the theory that the debility associated with calving predisposed to an acute exacerbation of a latent piroplasmosis.

These findings alone are, I think, sufficient to dismiss the hæmosporidian theory of red water—at all events, so far as Aberdeen and surrounding districts are concerned. Moreover, blood examinations fail to reveal the piroplasm, and cultural methods are also unfruitful, although on one occasion a hæmolytic streptococcus was found in culture from the jugular blood. As this blood sample was not taken by myself, I could not be certain that complete asepsis was observed during the operation. Further samples from different cases, taken personally, were negative on culture, and yielded no information microscopically. We may, therefore, with due respect to authorities, dispose of the theory of tick borne hæmosporidian infection, and might profitably investigate along the lines of gastro-intestinal hæmolytic toxæmia, probably referable to some dietetic deficiency.

Course.—The disease usually runs a course of two to five days, *i.e.*, for convalescence to be established or death to have supervened.

Symptoms.—The first observable symptom is the frothy character of the urine, although its colour may be unaltered. Constipation is usually in evidence, the fæces being passed like a strand of thick wire, as if there were constriction of the anal orifice. Cardiac auscultation reveals a characteristic heart beat, both sounds being practically similar in character and duration—we find, in effect, the commencement of anæmic palpitation. The animal at this stage, apart from slight dulness, may appear quite well and eat normally, but the symptoms rapidly intensify, the frothy urine assuming a smoky tint, changing later to red and finally to deep porter colour. This change appears due to the elimination of methæmoglobin and bile derivatives in the urine.

Anorexia accompanies the colour change, and the anæmic palpitation becomes severe; in fact, the heart beats may be heard in some cases several yards away from the animal, which now has a very heavy appearance, emaciation and prostration being progressive. Bile pigment may be present in the blood stream, the conjunctival and buccal mucous membranes being often stained deep yellow.

Should the urine fail to clear in three or four days, a fatal issue may be anticipated, but should it clear up, recovery is gradual, there being danger of collapse just as the urine clears.

* Presented to the North of Scotland Division at Aberdeen on September 4th, 1926.

Diagnosis.—This is based on the red colour of the urine and its frothy character, the wiry appearance of the fæces, and the anæmic cardiac palpitation. These symptoms may be taken as pathognomonic of red water.

Differential Diagnosis.—The conditions likely to be confounded with parturient red water are hæmaturia, sapræmia associated with toxic endometritis, when there may be a blood-coloured urinal secretion, and, thirdly, a sanguineous discharge from the uterus during micturition, a few days subsequent to the act of calving. These three conditions are differentiated, in the absence of a sample of urine, by the facts that there are no anæmic palpitation, no wiry fæces, and no history of the urine being frothy. There is, of course, direct negative evidence of red water should one see the urine passed.

Prognosis.—The prognosis is fairly good if expense in treatment is not grudged or the owner a conscientious prohibitionist. Good nursing and attention are a *sine quâ non*. The percentage of recoveries with suitable treatment should be about eighty. The longer the time elapsed since calving, the more favourable the prognosis. If only a few days have elapsed since calving, one would be well advised to recommend slaughter.

Treatment.—A brisk purgative should be administered at the outset, with the object of eliminating toxins from the system, and also to remove any hæmolytic toxigenic agents which may be resident in the alimentary canal. This is followed up with stimulant treatment in the form of æther draughts, or preferably spts. frumenti in six ounce doses every three hours, or oftener if the condition of the patient demands it. Ammonium carbonate and nux vomica powders are useful to correct constipation, in addition to being good stimulants, while the administration of arsenic and iron in large doses acts as a hæmatinic tonic combination.

The utility of sodium chloride as an agent which will help to maintain blood pressure should not be forgotten, and its exhibition will also create a condition of polydypsia whereby an increased volume of water will constantly circulate through the renal system, carrying with it toxins in solution. Food should be nourishing and easily digested, bruised corn, bran, linseed and boiled turnips being a useful combination, which is often relished. Available green food should be allowed *ad lib.* Bone marrow mixed with the mash is sound treatment.

When the urine is clearing up, stimulant treatment must not be suspended or a fatal issue may result—stimulants should be withdrawn gradually. The intravenous injection of glucose solution is good treatment to ward off collapse during the crisis, in addition to its value as a food and as an agent which hastens the oxidation of circulating toxins.

The intravenous injection of trypan blue or tartar emetic, although perhaps useful in true piroplasmosis, is useless here, but the subcutaneous or intravenous administration of physiological saline solution is beneficial if done twice daily.

Pathogenesis.—In my view, the origin of the hæmolytic toxin is to be found in the gastro-intestinal tract; from there it passes *via* the portal circulation to the liver which, being busy at this period with the metabolic activities associated with milk production, is unable to cope with it. From the liver it passes into the blood stream and there breaks down the red blood cells, liberating the hæmoglobin and leaving the so-called blood shadow-cells which have lost their pigment and are undergoing disintegration. The respiratory pigment, hæmoglobin, is a conjugate protein consisting of the protein globin and a brown pigment, hæmatin. The hæmoglobin is partly broken up on hæmolysis and the hæmatin may be partly excreted by the kidneys with the globin, or it may be laid down in the tissues, giving them a yellowish-brown tint—hæmochromatosis. The red cell content of the blood may fall to one-third of the original, giving rise to a marked oligocythæmia, and the blood itself is hydræmic. Hepatogenous pigment may be found throughout the tissues.

Sequelae.—Apart from oligocythæmia and debility, which one would naturally expect has sequelæ, there occasionally develops, within a week of the establishment of convalescence, broncho-pneumonia, which one can hardly refer to careless drenching.

Its origin is obscure, unless it be explained by the normal bacterial flora in the lungs assuming a pathogenic rôle, while the body is busy elaborating its defences elsewhere. Needless to mention, it is a grave sequel, although not invariably fatal when treated on rational lines.

Necropsy.—This reveals anæmia, hydræmia, oligocythæmia, icterus, and hæmochromatosis. This latter condition may be found in an animal slaughtered months after recovery from red water, and is recognised chiefly by a yellowish-brown coloration of the fat throughout the carcase, the musculature of which is also darker than normal. It is due to the deposition in the tissues of hæmosiderin, the iron-containing derivative of hæmoglobin.

Prophylaxis.—Prophylactic measures are difficult to formulate, as the majority of cases occur in early spring, when natural grazing is not available. Salt should be given the animals while housed, to maintain the sodium chloride balance of the blood, but perhaps the best preventive measures, in the present state of our knowledge, are improved tillage and manuring of the soil, with a view to enriching its end products for winter feeding.

Discussion.

The Chairman: We are all very grateful to Mr. Wallace for introducing this very important subject in such a scientific manner. His theories were very interesting and are sure to give rise to a very good and profitable discussion.

Mr. Brown: We have to thank Mr. Wallace very much for his paper. I have not, for a long time, listened to a paper of so much scientific interest. I agree thoroughly with him in his arguments. This is a very important disease to veterinary practitioners in

the North of Scotland and it must not be confounded with piroplasmic red water, which is rare in this part of the country, although it was at one time, I believe, very common in certain parts of Aberdeenshire under the name of "Darn." On one occasion, I had to deal with a small outbreak on Deeside. I showed some of my cases to an Argentine veterinary surgeon and he said that if he had been in the Argentine he would have called it Texas Fever. I took blood samples and found the piroplasms and sent some to Sir John M'Fadyean, who confirmed my diagnosis. This form is dying out with improved cultivation and drainage, and is very rarely seen nowadays.

The disease we are discussing is of a totally different nature. There is no doubt that it is dietetic in origin and is largely due to bad farming. It is most frequently seen in the spring when the nourishment has largely gone out of the turnips and straw, and especially where no concentrated foods are given. On the larger farms the cattle are better looked after and balanced rations are given, with the result that they are comparatively immune from red water.

Early diagnosis and an early dose of purgative is 50 per cent. of the treatment. This, followed by stimulants, gruels and milk, should lead to a good percentage of recoveries.

Mr. McVEAN: I have to compliment Mr. Wallace on his very excellent paper. Three years ago we had a very serious outbreak of the disease—plethoric cows provided the majority of cases. I agree with Mr. Wallace regarding the treatment—plenty of stimulants and gruels. I am of opinion that it is bad practice to allow the udder to be drained of milk, as that stimulates milk production, thus weakening the patient. Salts of ammonia are, I think, contra-indicated. Some years ago I had red water in young stirks, but that must have been the piroplasmic type, as the animals were grazing on swampy ground.

Mr. CLERK: I would like to add my meed of praise to Mr. Wallace for his paper. I have had very little of this disease in my district. One year I had a very bad case which recovered, but lost half of its tail through gangrene. I give a good purge, followed up by stimulants. I believe that animals getting too large a ration of turnips are more liable to contract the disease.

Mr. ROBSON: I come here more as a student than as a practitioner, as I have seen very little of the disease. I have only had about 20 cases in my lifetime, but on one farm it appeared rather badly. I suspected that the trouble was due to feeding the cows on swedes, and ordered them to be discontinued. After a lapse of seven years I had it again on the same farm and found that again the cows had been fed on swedes.

Mr. CUMMING: We are all more or less familiar with this disease, as we have it every spring. In my district, I have had some cases of the piroplasmic form of the ailment, known locally as "Darn." After a good summer there is more sugar in the turnips and I think that has something to do with the prevalence of the parturient form the spring following. When I started practice, the disease was of a comparatively mild type, but now it has become more virulent. I do not give large doses of salines, for I think better results are obtained with linseed oil and stimulants.

Mr. NIVEN: I wrote a paper on this subject some few years ago and it was then decided that the disease was not piroplasmic in its causation. In years when turnips are plentiful and fodder scarce, we get the largest number of outbreaks. I do not believe in big doses of purgatives, because they weaken the stamina of the patient. When the case is on the point of collapse and very depressed, I find that the subcutaneous injection of normal saline has a wonderful effect in brightening up the patient. I rely mostly on stimulants, gruel and milk and eggs, and good nursing.

Mr. CRABB: Forty years ago red water was very prevalent at Aberdour, but I am glad to say that there is not so much of it now, owing to the great improvement in our system of farming. I give a light dose of Epsom salts, combined with sodium chloride. I am old-fashioned enough to stick to milk and egg treatment.

Mr. HEPBURN: My idea is that this is a deficiency disease. The animal is not getting a balanced ration. I have one farm on which I have treated red water for 20 years. Formerly there were many deaths, and then the treatment was turpentine and terebene. I stopped this and gave liq. ferri perchlor. fort. in ℥i doses, with the result that this treatment now acts as a specific. I have had no deaths for a number of years, but probably I am more fortunate in having a milder type of the disease with which to deal. I give two bottles of linseed oil and keep on giving common salt. I have had good results from two doses of ℥ii of adrenalin chloride solution every day. Attend to stomach treatment afterwards as required.

Mr. DRENNAN: There is no doubt that this disease is dietetic in its origin, but it is very difficult to get farmers to alter their system of feeding cows. I give mild laxatives, such as common salt and treacle—linseed oil is a poison. This is followed up by stimulants—milk and eggs. Stimulants should be given not three times a day, but six. Intravenous injections of glucose solution, 200 c.c., seem to enable the heart to settle down.

Mr. SIEVWRIGHT: I have been considering whether it would not be better to stop giving turnips to cows and substitute potatoes. Adrenalin chloride helps the heart at the stage when the water is beginning to clear.

Mr. HOWIE: I am quite certain that this disease is due to a deficiency of something in the dietary of the cows affected. The deficiency may be of proteins or it may be of mineral salts. It is well known that the great majority of farm cows are fed purely on turnips and straw the whole winter through. One farm in my district has been a red water farm for 40 years. In that period, I have had many cases and many deaths. A change of tenants took place and in the first spring the new farmer had six cases and lost four of them. I suggested to him that prevention

might be better than cure and that it certainly could not be worse. I advised him to reduce the turnip ration by two-thirds and substitute three rations per day of oats and linseed cake, commencing a month or six weeks before the cow was due to calve and continuing for a month after calving. That was 18 years ago. He took my advice and I have had no more red water cases on that farm. That goes to show that a balanced ration is absolutely necessary if red water is to be stamped out on farms with such a history.

Regarding treatment, I do not think that there is any drug in particular which might be called a specific. I have tried all of them except the glucose treatment suggested by Mr. Drennan, and some years I have thought I had got the ideal treatment, only to discover next year that my specific had lost its charms. I pin my faith to stimulants, gruel, eggs and good nursing, plenty of warm clothing and a good straw bed. I am quite sure that prevention is better than cure, if we could get our farmers to adopt proper rationing with plenty of salt in the food.

The CHAIRMAN: The discussion has brought out many interesting points. I was very much struck with Mr. Brown's experience with "Darn." The late Principal Dewar was also interested in it and sent slides of our parturient red water cases to Professor Nuttall, of Cambridge, who could find no piroplasms in the blood. Professor Craig, of Dublin, is sure that our form of red water is the same as they get in Ireland and that it is not piroplasmic. Parturient red water, if it occurs within a fortnight after calving, is very fatal, but after that the chances are better. Deficiency varies on different farms, but we can prevent it by withholding turnips and giving grains, cakes and salt. I rely on no special line of treatment. I do not like large doses of purgatives, as they tend to throw large quantities of fluids into the bowels, thus draining the system and weakening the patient. There are certain fields on farms, the turnips grown on which have the reputation for causing red water.

REPLY.

Mr. WALLACE, in reply, said: I am greatly pleased with the discussion my paper has elicited. I have to thank Mr. Brown for his remarks on piroplasmic red water as found on Deeside. I am quite satisfied that the disease with which we are dealing is not piroplasmic. Mr. McVean's insistence on not draining the udder of milk is sound. Mr. Robson's immunity from red water must be due to the fact that he practices in the best agricultural county in Scotland. My objection to turpentine as a curative is that it spoils the flesh in the event of having to slaughter the cow. I do not give large doses of purgatives; 12 ounces salts only. Glucose acts as a stimulant and oxidiser.

In reply to Mr. Howie, I can say that you can give intravenous injections as fast as you like without doing any harm. Regarding potatoes, as a change feed, it is a question of getting the cows to eat anything at all. We all depend largely on *Vis medicatrix naturae.*

"Purpura" in the Dog.*

By OSCAR SCHRECK, New Haven, Conn.

DEFINITION. Extravasations of blood, in the form of points, petechiæ, or ecchymoses, are not uncommonly observed beneath the surface of the skin in various forms of disease, and under many other conditions, and are often termed purpuric. Not infrequently these subcutaneous extravasations (especially if due to constitutional disorders) are associated with similar extravasations into solid organs, beneath the serous and mucous membranes, and with more or less abundant escape of blood from the surfaces of these membranes. These hæmorrhages may be of various sizes. When small, they are called petechiæ, when larger, they are called ecchymoses. There is no proof that purpura is a disease of the blood in the small animals. Such extravasations are especially found in the case of distemper, obstructive heart and liver disease, as secondary disease, also following pyemia, and in embolism. They further occasionally complicate certain skin diseases, more especially some of the forms of erythema and urticaria (very rare, however) and may be produced in certain regions by mere exposure to atmospheric influences. But to none of these affections, however severe they may be, can the term purpura be properly applied, in the small animals. Purpura in the strict sense of the term (the *morbus maculosus*, Werlhofii, of the Germans) is the name given to an affection characterised by such hæmorrhages as have been above specified, but unconnected, so far as we know, in the small animals, with any local mischief or any general specific disease.

CAUSATION. Purpura is not limited by climate, sex, or breed. It appears to be strictly sporadic. The causes of purpura and the conditions under which it arises in the small animals, are exceedingly obscure.

In some instances, the disease appears to arise from causes of a debilitating nature, calculated to impair the efficiency of the processes of sanguification, while, at the same time, there is a want of material out of which the blood is made. Hence, unwholesome, indigestible, and scanty food, confined and impure air, continued fatigue, and the debility induced by various diseases, as distemper, have been ranked among the causes of purpura. It occurs at all ages, but mostly in young animals of both sexes. It may be observed among animals that are sickly, underfed, or surrounded by unwholesome sanitary conditions, but it is also met with among the robust and healthy looking, and those whose hygienic and other circumstances appear to be unexceptionable. An infectious origin is not unlikely. Purpuric spots are not infrequently seen with valvular diseases of the heart, cirrhosis of the liver, and various forms of fever. Distinct exciting causes, if such exist, are obscure. Fright, severe coughing fits, and epileptic attacks are said to have induced it. There is no doubt in my mind but that the enfeebled condition of the vessels often depends upon a state of general debility, either hereditary or acquired.

*Reprinted from the August number of Chicago *Veterinary Medicine.*

SYMPTOMS. The onset may be marked by moderate fever (102° to 103° F.). In some cases purpura presents an acute form, but is generally unattended with fever or severe constitutional disturbances, unless from loss of blood the strength is materially impaired. This loss of blood happens in some cases into the loose connective tissues of the body or from the lungs, and still more frequently from the bowels or urinary organs. Under these circumstances the pulse, which otherwise is apt to preserve its normal frequency, becomes very rapid, but until exhaustion commences to tell on the nervous system, not as a rule long before dissolution—the animal remains alert, and cerebral or spinal symptoms are absent.

There may be or may not be hæmorrhage from the mouth, but almost always bluish-red hæmorrhagic spots about the size of a ten cent piece to a quarter dollar are visible under the breast, in the fore and hind leg pit, on the abdomen and inner surface of the thighs, and are wholly uninfluenced by pressure.

Desquamation never follows and, once formed, a spot does not increase in size, except by fresh hæmorrhage in its vicinity. They do, however, gradually change their colour and fade. They are also by no means confined to the above-mentioned situations, and not infrequently extravasations take place into the eyelids, beneath the conjunctivæ, and beneath the mucous surface of the tongue, lips, gums, and other parts within the mouth of the animal. The gums are not soft and spongy, as in scurvy, nor do we observe the same weakness of the animal body. Moreover, although, like scurvy, the disorder may be benefited by iron, bitter tonics, and the mineral acids, it is not controlled, like scurvy, by lemon juice—in fact, by agents that are most decided anti-scorbutics. The fact that there is no itching, no desquamation, no suppuration or discharge, and no change in purpuric spots upon pressure, suffices to distinguish them from the eruption of any form of skin disease.

Nasal hæmorrhages and loosened teeth, particularly the incisors, may be frequent. In many instances, the preliminary symptoms are wholly wanting and the appearance of the petechiæ marks the commencement of the disease. One case coming under my observation was wholly without external hæmorrhage; in others, this is the most prominent symptom, such as blood escaping from the nostrils, gums, and other parts of the mouth, conjunctiva, stomach, bowels, kidneys, and urinary passages, rectum and vagina, sometimes excessively, so as to occasion immediate alarm, but as a rule in small quantities.

Anæmia and its associated phenomena develop in severe cases.

ANATOMICAL CHARACTERISTICS. The spots upon the skin are found to be due to blood extravasated immediately beneath the cuticle, or in the texture of the cutis itself. Blood is also seen occasionally in the subcutaneous cellular tissue, forming extensive ecchymoses. This may be washed away, leaving the vessels without any marks of injection, or other evidence of inflammation. Petechiæ similar to those on the skin are found in the mucous membrane of the alimentary canal, and sometimes, though more rarely, and less numerously, upon the serous membranes, as the pleura, pericardium, and peritoneum. Extravasation of blood sometimes exists also in the lungs, in the parenchyma of the viscera, and in the substance of the muscles. In several *post-mortem* examinations the blood was found to be remarkably fluid, even in the tissues into which it was effused in considerable quantity.

COURSE, DURATION AND TERMINATION. The whole course of the disease includes the prodromal period, the purpura simplex, the period of hæmorrhage, and the subsequent anæmia. The duration is influenced materially by the number and amount of hæmorrhages. An ordinary case will last two or three weeks, but when there are repeated hæmorrhages, the disease may continue for several months. Although most cases recover, death sometimes happens from exhaustion, from internal hæmorrhage, from some intercurrent malady, and from perforation of the bowel.

DIAGNOSIS. Purpura may be confounded with scorbutus, hemophilia, progressive anæmia, cerebro-spinal meningitis. From scurvy it is differentiated by the absence of changes of the gums, of the indurations of the subcutaneous areolar tissue and of the muscles, of the hæmorrhagic inflammation of serous membranes, etc. From hæmophilia, the distinction is made by reference to the history, especially heredity, by the period of the animal's life, by the bleeding from trivial wounds, so characteristic of hæmophilia, and not of purpura. The distinction of purpura from progressive anæmia rests on the fact that in the former the anæmia is produced by the bleeding, in the latter the bleeding comes on afterwards and is due to the poverty of blood. The initial symptoms of cerebro-spinal meningitis may be almost identical with those of purpura; purplish spots, pain in the joints, by palpation, with some slight feverishness, but in a day or two the occurrence of nervous phenomena decides the question.

PROGNOSIS. In uncomplicated purpura the prognosis is good, but when venous thrombosis, diarrhœa, or an incurable organic disease exists, the animal's life is endangered by the liability to hæmorrhage from mucous surfaces and the occurrence of extravasations into the serous cavities of the brain. Anæmia and dropsy are often causes of small animal deaths. Relapses are not uncommon.

TREATMENT. The severer cases are unfortunately apt to go from bad to worse whatever treatment be adopted. The usual treatment consists in the administration of the mineral acids, especially the sulphuric, and the preparations of iron, especially the tincture of chlorid. With these remedies must be conjoined a suitable dietary, fresh air, sunshine, and moderate exercise. If constipation is noticed, the most appropriate laxative in small animals suffering from this disease is sulphate of magnesia with dilute sulphuric acid. If hæmorrhages that are threatening come on with a strong pulse, excitement, and uneasiness of the animal, digitalis, quinine, and ergotin are the appropriate medicaments. If there be weakness and

debility, quinine and alcoholic stimulants moderately should be prescribed for the animal. The local means for arresting bleeding consist in sub-sulphate of iron, tannin, alcohol, ice, or again it may be hot water, which is sometimes more effective in the small animals than cold. For the anæmia iron should be pushed. Turpentine and gallic acid are also indicated. Cold drinking water should be given, and renewed quite often. If asthenia be extreme, it is absolutely necessary to push alcoholic stimulants. On the whole, tonic treatment is indicated also in those animals which have a tendency to purpura and in those which are convalescent from it. When hæmorrhage from the lungs occurs, the treatment is the same as in other forms of bronchial hæmorrhage. Recently, small doses of mercury have been given, and apparently effected a cure in some cases.

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Olei terebinthinæ	℥ i	4·00
Sacchari	℥ iv	16·00
Acaciæ	℥ iv	16·00
Aqua q. s.	℥ iii	90·00

Misce fiat emulsion.

Sig. Teaspoonful after feeding.

Indications: Useful in animals with debility and vascular relaxation.

℞

Suprarenali sicci	℥ i	4·00

Pone in capsules No. XXIV.

Sig. One to three capsules t. i. d. after feeding.

Indications: Used in purpura with vasomotor relaxation.

℞

Potassii iodidi	℥ℨ i	32·00
Aqua bullientis q. s. ...	℥ i	30·00

Sig. Five to twenty drops in milk, t. i. d. after feeding.

Indications: Useful in purpura.

℞

Calcii chloridi	℥ℨ iv	15·00
Aqua	℥ vi	180·00

Misce.

Sig. Teaspoonful to a tablespoonful in water t. i. d.

Indications: Used in severe and obstinate cases.

The animal should be fed freely with gelatin.

Case Reports. A Great Dane pup, eight months of age, had always been in perfectly good health, was still running around with the bitch, who was a healthy, strong animal, and had two other healthy pups at this time. The stud dog was also remarkably strong and healthy. This pup, without any noticeable previous symptoms, suddenly developed what I diagnosed as purpura. Large ecchymoses appeared upon the inner aspect of the hind and front legs, about the size of a pea; the animal rapidly failed in strength, and died in forty-eight hours. There was no hæmorrhage from the mucous membranes.

In a Boston bulldog, the skin of the inside of the extremities showed numerous ecchymoses of various

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The Veterinary Record.
20th November, 1926.

POST-GRADUATE STUDY.

Most men who take a keen interest in their calling soon become conscious, as time proceeds, that not only do they not know everything but, indeed, that they know little of anything. This is all to the good, as the fact that we are aware of our ignorance is an indication of our intelligence. This class of man endeavours to make good his shortcomings by constant post-graduate study and investigation. Where he is favourably situated as to time and opportunity he not infrequently takes a special course of instruction in some medical school or other institution either at home or abroad. Others, not so favoured, are regular attenders at meetings of veterinary societies, especially when practical demonstrations are down on the agenda. The majority study the most up-to-date literature available and record their experience of some hitherto unknown malady or condition.

With all these advantages or opportunities, however, the general practitioner, who forms four-fifths of the profession, is not catered for in the matter of such post-graduate instruction as is necessary for him to keep up-to-date in order that he may be of greater service to the general public. None of our veterinary institutions is enterprising enough to throw open its doors and provide a course of special instruction suitable for the requirements of the general practitioner, although one does give a course of training for the diploma in veterinary state medicine. In our profession there cannot be any specialist who could devote his whole time to one class of disease or to the diseases of a special organ. For this very reason the general practitioner should receive post-graduate-instruction in special diseases or diseases of a special organ. The public frequently complains that veterinary surgeons do not always satisfy its requirements and, if they cannot, to whom may it turn for superior knowledge or advice? There is no doubt that if there were facilities for post-graduate training many would volunteer to undergo the special courses, provided they were practical and given by

(*Continued from previous column.*)

sizes and of a dark red and purple colour. On the abdomen on both sides of the nipples were two large ecchymoses, also smaller ones scattered about between the larger ones. On *post-mortem* examination, nothing was found except a slight atelectasis of the lower lobes of both the lungs, with adhesions of the pleura, and a slight degeneration of the heart, liver, and left kidney, and enlarged mesenteric lymph glands.

men who really knew something about their respective subjects.

Men who enter the Army, the Colonial, Ministerial or Municipal services are well catered for, but they only form one-eighth of the profession, whereas the general practitioner is left out of consideration, to the detriment of the whole, and that of the general public. The profession is its own master, and if it does not act accordingly it must not blame onlookers for casting reflections upon it. Has the profession the will to raise itself to that high level to which it desires to attain? We are judged by our ability to produce results; in fact, we must see ourselves as others see us. This is our view of the situation.

Dangerous Drugs Act Charge.

Before the Common Serjeant (Sir Henry Dickens, K.C.), at the Central Criminal Court on Monday, John Kynaston, retired lieutenant-colonel, R.A.M.C., was charged with aiding and abetting, counselling, and procuring Rowland Pawsey to attempt to obtain a certain dangerous drug (medicinal opium) contrary to a regulation of the Dangerous Drugs Act, 1920. He was found *Guilty* on the direction of the Judge, who imposed a nominal fine of £10.

Mr. H. D. Roome (for the prosecution) said the defendant had chosen to exercise his right and go for trial. Under the Dangerous Drugs Act no one was allowed to be in possession of any drugs prohibited in the regulations unless he was licensed or got them on the prescription of a "duly qualified medical practitioner." That had a definite and simple meaning—a person on the medical register. The defendant was not now a registered medical practitioner, but he practised as a doctor. His name was removed from the register in 1922, but he could practise subject to certain loss of privileges, one of which was that he might not deal in dangerous drugs. Mr. Pawsey on August 25 was suffering from nasal catarrh, and the defendant gave him a prescription. The first thing in it was powdered opium. This prescription was signed: "Lieut.-Col. John Kynaston, R.A.M.C. retired, M.R.C.S. and L.R.C.P. (London)." He had not the right, as a matter of fact, to the letters "M.R.C.S." and "L.R.C.P.," because he had been deprived of them.

Mr. Norman Carew King, Registrar to the General Medical Council, said the defendant's name was removed from the register in May, 1922, for advertisement.

The defendant contended that the removal of his name was illegal because they had allowed Sir George Newman, a "tainted judge," to be present at the inquiry after he (the defendant) had challenged him. The Judge ruled that the question whether the defendant's removal was legal or not was irrelevant in that Court.

Giving evidence, the defendant maintained that he had a perfect right to the titles of M.R.C.S. and L.R.C.P. until they gave him definite assurance on what statutory authority he was deprived of them. He had notified the colleges that he intended going on using the letters until they did. Under the Dangerous Drugs Act, he contended, he was entitled as a qualified man to prescribe the drugs, and he submitted that "duly qualified" in the regulations did not mean necessarily registered.

After the jury had given their verdict Mr. Roome said the case had been brought because the authorities were anxious to make it clear that only registered medical men could prescribe dangerous drugs.

The Common Serjeant, in imposing the fine, emphasised that the proceedings had been taken to make it clear what the Act of Parliament meant. He therefore only imposed a nominal fine, as the defendant was perfectly *bona fide* in his views. If he (the Common Serjeant) was wrong, the Court of Criminal Appeal would set him right.

The defendant intimated that he would probably appeal.

CLINICAL AND CASE REPORTS.

Bi-carbonate of Soda as a Medicinal Agent.

By Lieut.-Col. J. W. Rainey, M.R.C.V.S., Bow.

It has been interesting to observe the increasing number of references in recent clinical records to the use of bi-carbonate of soda in the treatment of animal diseases.

The bi-carbonate, or, as it is better termed, the hydro-carbonate of soda, is one of the few, *the very few*, drugs the use of which in the treatment of animal diseases is justified on scientific as well as on practical grounds; that is to say, the beneficial action of which is demonstrable.

The writer has a personal therapeutical experience of bi-carbonate of soda which is probably not less than that of any other living man, because on account of a chronic achylia gastrica he has taken at least half an ounce of the drug every day for the past eighteen years, and has naturally not neglected to observe its effects scientifically, with the aid of the œsophageal tube and in other obvious ways.

The object of prescribing bi-carbonate of soda is, of course, to neutralise in a harmless manner that excess of organic acids which is often produced in the alimentary canal as the result of lactic, butyric, and acetic fermentation, when there is, owing to disease, any substantial interference with the normal secretion of the digestive ferments and the normal peristalsis. The nascent digestive ferments (notably hydrochloric acid) that are secreted in a healthy alimentary canal, are the natural antiseptics which keep within bounds the moulds and bacterial flora; and the normal peristalsis is the policeman who keeps these mirco-organisms on the move. If and when these forces fail, the stomach becomes a factory, and a most efficient factory, for the production, chiefly by moulds, of organic acids in surprising quantity and with incredible rapidity.

A malaise is produced which aggravates the symptoms of the primary disease of the patient; a malaise which need only exist so long as one neglects to prescribe, as often as may be necessary, a quantity of a bland alkali sufficient to neutralise the excess of acid.

So soon as this neutralisation is effected, the pylorus, which hitherto has nearly closed its doors against the onward passage of the fermenting mass, relaxes, the stomach proceeds to empty itself in a normal manner, and all is well until the next meal. Something demonstrably beneficial has been accomplished, and the physician may for once truly claim the credit.

It might appear, on theoretical grounds, that it would be better to deal with the excessive fermentation at its source by physical or chemical means, rather than to be content with the neutralisation of the products of fermentation. Unfortunately, this is neither practicable nor possible. It is not practicable or desirable to wash out the stomach before each meal, even if the difficulty of securing adequate nutrition could be

overcome. Moreover, strange as it may appear, the acid fermentation of a meal is not appreciably affected by a preliminary lavage. It is not possible to discover any antiseptic which, administered *per oram*, in safe dosage, will appreciably limit acid fermentation in the stomach. This may be because the fermentation takes place, or at any rate the multiplication of the micro-organisms that elaborate the ferment takes place, close to the stomach wall under the protection of the tough mucus which one finds in that area.

In the present state of our knowledge, then, there is only one way to deal with the pathological excess of organic acids in the stomach of sick animals, and that is to give sufficient doses of a bland alkali, of which the hydro-carbonate of soda is the best example.

A virgin field for scientific and philosophic enquiry is the question why nature seems to approve of this excessive bacterial fermentation in the alimentary canal of diseased man and animals. It is generally agreed that fever is nature's attempt to combat bacterial infection, but in what way is nature helped by this excessive production of organic acids in the stomach? The question is pertinent, because upon the answer depends the philosophic justification of a rationale which, to our presently-limited powers of reasoning, appears indisputably beneficial.

We have learned that it may be wrong to "fight" fevers; shall we some day learn that it is wrong to neutralise acids and, if not, why not?

Finally, in the consideration of the more practical aspect of the use of bi-carbonate of soda, the writer, from his own observation, ventures to draw the following conclusions:—

1. An indication for the use of bi-carbonate of soda in the treatment of sick animals often exists.

2. The therapeutic action of bi-carbonate of soda rests in its power to neutralise deleterious acids and, in warm aqueous solution, to dissolve excessive mucus.

3. Within the widest reasonable limits it appears to have no toxic action, and it has not demonstrably any therapeutic action except as stated above. Those other therapeutic actions that are ascribed to the drug in text books appear to be imaginary.

It could not, indeed, be otherwise, because when an ordinary dose of bi-carbonate of soda is introduced into the stomach it speedily combines with an organic acid to form a therapeutically inactive and neutral salt. At the best, some sodium chloride may be formed.

4. If the use of bi-carbonate of soda is indicated, it should be prescribed in adequate doses. The value of the drug as an anti-acid is in direct ratio to the extent to which the dose given is capable of neutralising the excess of deleterious acid contained in the alimentary canal of the patient. For example, it is not conceivable that any excess of organic acid in the alimentary canal of a horse which could be neutralised by a smaller dose than one ounce could adversely affect the health of the animal.

5. For the foregoing reason, and from clinical experience, it is therefore recommended that bi-carbonate of soda, when indicated, should be prescribed in the following minimum daily quantities:—

Dog	...	...	2 drachms.
Horse	...	...	4 ounces.
Ox	...	...	8 ounces.

6. Samples of bi-carbonate of soda vary much in their capacity to neutralise acid. The best is the finely-granulated variety, but the chief point is the freshness of the drug.

Two Interesting Cases in Cows.

By H. M. Wilson, M.R.C.V.S., Cupar.

Mr. Arthur New, M.R.C.V.S., in the *Record* of 2nd October, 1926, writes of "Two Cases of Milk Fever in Cows before Calving."

On the 4th October, at 5 p.m., I attended a five-year-old Ayrshire cow "at the drop." She was down, made numerous attempts to rise and was rapidly losing consciousness; in truth, she showed typical symptoms of milk fever. I was able to insert three fingers into the os. The udder was stripped, and the usual treatment for milk fever adopted. At 7 p.m. the same night the patient was on her feet, and about 9 p.m. she calved normally. Next morning (October 5th) she was found cleansed, and all correct. Such cases are not uncommon in town dairies, where numbers of back-calvers are kept and fed under unnatural conditions.

One day last week the owner of the cow mentioned above, at 11 a.m., turned out with his herd a newly-purchased Ayrshire cow. At 2 p.m. on the same day the new cow was found dead, and pools of clotted blood were noted about the field.

On examination of the carcase, a milk vein was found to be punctured—the hole admitting a small finger.

No other cause being apparent, it was suggested that the deceased had been gored by one of the aggressive members of the herd.

ABSTRACTS.

Anti-Tuberculosis Vaccination.

Vaccinal immunisation against tuberculosis is a phase—a very important phase—of one of the greatest problems of disease control which all civilised countries are endeavouring to master. Within the last five years attention has been focussed upon at least three rising waves of anti-tuberculosis vaccination induced by the published work of (1) Calmette and Guerin; (2) Professor Dreyer; and (3) Dr. Nathan Raw.

The author dismisses the methods devised by Professor Dreyer and Dr. Raw in a few words. Several attempts by other investigators to confirm Dreyer's work have signally failed, and furnished no evidence of protection against infection or of influencing the course and duration of the disease. With regard to the method of Raw, the claims made for his immunising vaccine have not been substantiated, and there

is no valid reason for supposing that inoculation with dead tubercle bacilli confers any protection against a virulent infection.

The Calmette-Guerin Method.

This method is based upon recognition and acceptance of evidence that a primary bacillary infection, and the presence of a benign latent focus, fortifies resistance against further invasion of tubercle and protects against virulent tuberculous infection. Accordingly, Calmette and Guerin have sought to immunise the young by using a living culture of tubercle bacilli from a bovine source " whose characteristics have been slowly and hereditarily modified by a long series of cultures on a highly alkaline medium, rich in lipoids (ox bile)." This bacillus, called " B.C.G.," is said to have lost completely its tubercle-producing property and its virulence for all animal species, including man, and at the same time to have preserved its antigenic functions. Consesequently, it is said to be of value as an immunising agent and is applied to the new-born. Calves are vaccinated during the first two weeks of their lives by inoculating ·05 to ·1 gm. of living " B.C.G.," into the loose tissues of the dewlap. By using this method under the conditions studied by Calmette and Guerin, young cattle appear to have been effectively protected against infection for over a year. An extensive trial of this method is at present being carried out in Great Britain, France and the Netherlands.

The author emphasises the need of carefully scrutinising the results of trials before announcing definite conclusions as to the value of this prophylactic method for the eradication of bovine tuberculosis. Although apparently favourable results have attended the experiments on calves and apes, the unknown factors attending the introduction and the fate of living tubercle bacilli in the animal body are too many to permit of the practical application of vaccination, except where tuberculous infection is so high that the possibility of doing additional harm is negligible.—W. L. S.

(E. A. WATSON, *Journ. Amer. Vet. Med. Assoc.*, Vol. 23, No. 1.)

A Comparison of Strains of Brucella Abortus isolated from Man with those from Cattle.

Reports of cases of undulant fever in man from which cultures of an organism indistinguishable from *Brucella abortus* have been recovered, have prompted Carpenter to compare five strains of *Br. abortus* isolated from the blood and urine of man with strains recovered from bovine sources.

The human strains were obtained either by guinea-pig inoculation or by direct cultures of blood and urine on horse serum agar. The identity of the organism isolated was checked by the agglutinin absorption test, and the various strains isolated from man could not be thus differentiated from strains recovered from cattle.

One human strain was slightly more virulent than the remaining four and produced lesions in the guinea-pig similar to those following the inoculation of porcine strains. The other four produced lesions which could not be distinguished from those resulting from the inoculation of the more virulent bovine types.

Cultures of *Br. abortus* extremely virulent for guinea-pigs were isolated daily from the milk drunk by the patient from whom the first strain was isolated. Examination of the milk from individual cows in this herd revealed that 50 per cent. of the animals harboured *Br. abortus* in their udders. Many of the guinea-pigs which were injected with the sediment and cream of mixed milk from this herd became greatly emaciated and died in from 14-40 days after injection.

Each of these human strains was inoculated into a pregnant heifer. Five heifers were obtained from herds in which no abortions had occurred, and each was inoculated intravenously with an emulsion of one strain. These five heifers aborted in from 4 to 20 days after receiving the cultures. The organism was recovered from the placenta and the milk in each case. The fœtus in four of the cases gave a pure culture. In the fifth case the fœtus was expelled alive at the 8th month of pregnancy.

In one cow, the mammary gland became infected and *Br. abortus* was discharged continuously for six and a half months. A calf which had received milk from this cow became infected. Four months after the supply of milk to this calf had ceased, the calf was still infected, as evidenced by a high agglutinin titre and the presence of *Br. abortus* in many of the lymph glands.—R. E. G.

(C. M. CARPENTER, *Journal of Infectious Diseases*, Sept., 1926, Vol. 39, No. 3, p. 215.)

Agglutinins for Brucella Abortus in the Blood of Man.

The author concludes that the agglutination test cannot be relied upon to detect the presence of *Br. abortus* in man. This organism was isolated from the blood of five out of twenty patients showing symptoms suggestive of undulant fever. No abortus agglutinins could be demonstrated in the serum of two of these. In one typical case, however, complete agglutination occurred in a dilution of 1 : 120.—R. E. G.

(C. M. CARPENTER, *Journal of Infectious Diseases*, Sept., 1926, Vol. 39, No. 3, p. 220.)

" It is certain," says *The Lancet*, " that in recent years veterinary education has enormously improved, and it can now be fairly said that the training of veterinary officers is grounded on a well-proportioned curriculum of scientific studies. Recent developments under the Ministry of Agriculture—which still has jurisdiction in Scotland so far as animal diseases are concerned—have made a considerable number of openings for young graduates, and the Milk and Dairies Act and Tuberculosis Compensation Order have led to the appointment of a relatively large number of whole-time officers. It will be interesting to see whether the effects of the Compensation Order will include a drop in the rates of human tuberculosis of all kinds. The next ten years should provide a real test of the theories about milk infection."

DIVISIONAL REPORTS.

Mid-West and South Wales Division.

Successful Meeting at Cardiff.

"Clinical Notes by Local Practitioners."

The above quotation from the Agenda of the Autumn Meeting of the Mid-West and South Wales Division represents a feature which never fails to attract the practising veterinarian, and this, combined with the now traditional loyalty of the members in the fulfilment of their obligation to attend the meetings of the Division, was responsible for an excellent gathering at Cardiff on an atrociously dismal day.

The meeting was held in the Queen's Hotel on Friday, October 15th, 1926, with the President, Mr. J. J. Aveston, in the Chair. There were also present Messrs. W. A. Austin, S. B. Clode, W. T. Edwards, E. P. Evans, A. H. Good, R. W. Hall, G. L. Harber, F. C. Hobbs, R. T. Howells, J. Howard Jones, W. D. John, W. D. Jordan, P. J. Lewis, J. W. Hall-Masheter, J. S. Perry, J. S. Pike, L. J. Pugh, A. E. Roberts, H. S. Robinson, J. H. Stewart, C. I. Watkins, C. D. Watkins, M. E. Williams, W. R. Williams and J. G. Wright, together with the Hon. Secretary, Mr. W. D. Rees.

The *Minutes* of the previous quarterly meeting of the Division, which had been published in the *Veterinary Record*, were taken as read and were signed as correct.

Correspondence.

(1) Apologies for absence from Messrs. Adams, Baxter, Coleman, Perry (C. E.), Rutter, and Williams.

(2) From the Secretary of the N.V.M.A. stating that next year's Congress of the Association would be held at Torquay, and asking the Mid-West and South Wales Division to send up a list of names, from which list the Council of the "National" could select gentlemen to serve on the Provisional Committee for the Congress.

The Hon. Secretary stated that in response to the request contained in that letter, the Council of the Division, which met a fortnight since, sent up the required list, from which the Council of the N.V.M.A. had chosen twelve members to serve on the Provisional Committee, the first meeting of which would be held at Torquay on the 30th of the month. At the same time, the Council of the Division asked him to write to the Secretary of the "National" pointing out that Torquay, owing to its inaccessibility, would be a difficult place for the members of that Division to attend. He was at a meeting of the Council of the "National" the previous week, and was informed that that matter was left entirely with the Provisional Committee to decide. There was a possibility that they would agree to have a meeting at Bristol or Exeter. Their representation upon the Provisional Committee was as follows: The President, Mr. Coleman and himself were *ex-officio* members, and the others were Messrs. Barker, Golledge, Hall, Hewer, Hall-Masheter, Perry, Roberts, Robinson, Veitch and Watson.

We are, concluded Mr. Rees, throwing in our lot with the Western Counties Division and the Council of the "National" and, although the Congress is not actually to be held in our Division, we are going to do everything that is in our power to make it as successful as possible. (Applause.)

The President: I desire to support the observations of Mr. Rees most heartily. It is our duty not only to ourselves but to the profession to which we belong to do all we can. We cannot assure to the Congress that success which all who have the interests of the "National" at heart so earnestly desire unless everyone concerned does his utmost. Every member of the Provisional Committee should make a special effort and come to the first meeting at Torquay on October 30th. We want to make the Congress there, when it comes, a good time for the President of the N.V.M.A., Professor Wooldridge, who is a very popular president and a friend of all of us. Moreover, at the Provisional Committee meetings there are some important innovations to be discussed, such as the formation of a Veterinary Inspectors' Section, and that question may possibly arise at the first meeting. This little profession wants all the help it can get at the present time, and a good Annual General Meeting of the "National" is, of course, very helpful to everybody concerned. (Applause.)

Nominations. The following gentlemen were nominated for membership of the Division; Mr. Arthur Blake, of Nailsworth (late veterinary officer to the Government of Burma), Mr. Howard Jones (veterinary officer to the Glamorgan County Council); and Mr. J. G. Wright, of Cardiff.

R.S.I. Delegate's Report.

Mr. J. C. Coleman, who represented the Division at the Jubilee Congress of the Royal Sanitary Institute, held in London in July, sent a report which was read to the meeting by the President, in the course of which he said:—

The inaugural address by the Right Hon. Neville Chamberlain, Minister of Health, was an exceedingly interesting contribution, and reviewed the Public Health Services for the past fifty years.

Bearing in mind that our Public Health Act dates to the year 1875, I think no greater proof of its obsoleteness need be sought than is contained in that address.

Throughout the address no mention whatever was made of the veterinary surgeon in connection with Public Health. This came as a great shock and surprise to me, and, in my humble opinion, is largely due to the lethargy shown by the majority of this profession in Public Health matters.

The many Sections were well attended by medical officers, sanitary inspectors and engineers and surveyors, and good discussions were sustained on the many papers submitted. The subjects treated, however, are evidently of little or no interest to the veterinary profession, if

the sparse attendance of its members at these meetings are to be taken as a criterion.

In the Veterinary Inspectors' Section on Thursday, July 8th, and Friday, July 9th, the attendance of members of our profession was good, as was also that of the medical profession, sanitary inspectors, etc., etc.

The following papers were submitted for discussion :—"The Work of the Veterinary Officer from the Pampas of Argentina to Smithfield Market," by Lieut.-Col. Dunlop Young, and "Some Notes on the Double Intradermal Tuberculin Test in Cattle and the Potency of Tuberculin," by Prof. J. Basil Buxton.

Both of these papers were exceedingly well received and discussed by everybody whom time allowed to speak. As they have been published in the *Veterinary Record*, I do not propose to worry you with details.

The social aspect of the Congress was excellent.

I have omitted one important point, *i.e.* that the Chairman, Alderman W. Phené Neal, gave a most excellent address to the Veterinary Inspectors' Section, and proved himself a most exemplary and sympathetic chairman.

The PRESIDENT: I am sure we are all very grateful to Mr. Coleman for his report, and the Secretary will write him a letter of thanks to say that we were very pleased to have his interesting and instructive report. (Applause.)

Next Meeting.—The PRESIDENT made reference to the next meeting of the Division in the following terms: Our Annual General Meeting and the Dinner which follows constitute one of the most pleasant functions which any one of us attends during the whole year. (Hear, hear.) It will do you all good to come to Bristol on the third Friday in January, for, although it has been successful in the past, I think it is a function of which we must make yet more in the future. We shall invite one or two of the leading members of the profession, for their presence and help encourage and stimulate us. We have had the President of the Royal College of Veterinary Surgeons in the past, and this year I have just heard from Mr. Rees that the present President, Colonel Brittlebank, will possibly be able to come along. (Applause.)

The PRESIDENT: There is, of course, also the President of the "National"—our old friend Professor Wooldridge—to be invited, and I would like to propose that these two gentlemen be asked to be the guests of our Association at Bristol.

The HON. SECRETARY seconded the proposition, which was carried with enthusiasm. It was further agreed to invite each of the Medical Officers of Health of the counties within the area of the Division.

Next Year's President. It was unanimously agreed to recommend to the Council that they should put the name of Mr. Hall, of Barry, before the Annual General Meeting as the President of the Division for the year 1927.

CLINICAL NOTES BY LOCAL PRACTITIONERS.

Sub-Acute Impaction of the Cæcum.

Mr. STEWART, of Cardiff, in response to the President's invitation, introduced this section of the proceedings. In doing so, he said: The first case I will bring to your notice is one of sub-acute obstruction of the cæcum. My attention was especially drawn to this condition by having read the chapter in Caulton Reeks' book, "The Common Colics of the Horse," in which he quotes at length from Mr. Gofton in connection with just such a case as I am going to describe to you and which I was called upon to see on a Saturday afternoon. The history was this: the horse, during work, was attacked with diarrhœa, and the driver stated that he had practically to "carry the horse back to the stable." They had given it a drink and when I was called in, at 8 o'clock, I found the animal in this condition: there was little abnormal about the temperature, the pulse, or the respiration. The animal appeared to be in what one usually terms "dull pain," which one usually associates with sub-acute obstruction. The pain was never acute, and the horse was inclined to walk around the box, lying down at intervals for from 15 to 30 minutes. There was spasmodic pawing of the forelegs, but nothing very alarming. As a matter of fact, the case would not, in the ordinary way, have caused one much anxiety. Upon a rectal examination, however, one's opinion rapidly changed. Caulton Reeks says, quoting Gofton, that it is possible to find and manipulate the cæcum if it is impacted. I fail to distinguish the organ in the normal state, but if it is impacted I have satisfied myself that I can feel it, as in several cases that have come under my notice I have felt the organ and on *post-mortem* examination my diagnosis of cæcal impaction has proved to be correct. The animal in question appeared to be somewhat distended, but not alarmingly so, and there was nothing that would suggest one's using the trocar and canula. With the administration of a dose of eserine one got an evacuation, but one could not see that it was really satisfactory. The animal was walking round the box in a casual way, and then it would paw first with one foot and then with the other. It went down and remained down sometimes for ten or fifteen minutes or half an hour, with occasional groans and a look towards the flank. On the Monday evening the temperature was 103° F., the pulse running down, the respirations catchy, and the mucous membranes injected. I expressed the opinion to the owner as to what I thought was the true nature of the case, and he said "shoot it," which I did.

On the following morning I made a *post-mortem* examination in the presence of the owner, who knew something about anatomy. My diagnosis was certainly correct, but I had a great surprise. There was undoubtedly impaction of the cæcum, and there was a considerable inflammatory process there. There was also inflammation of the first portion of the colon and sacculation of the bowel. Just at the cæco-colic orifice I found no less than eleven calculi, which I now present for your inspection. No doubt they were the cause of the impaction. Cases of cæcal impaction can be diagnosed—at least that is my experience, though

I do not say that it is so in every case. You will notice that these calculi are facetted.

Mr. PERRY: Did I understand Mr. Stewart to say that the calculi were, in his opinion, the cause of death? I should also like to ask what, in his opinion, was the primary seat of the trouble? I should not imagine that the calculi were the cause of the impaction. I have found calculi bigger than these in horses which showed no symptoms at all.

A MEMBER: Had the horse shown any symptoms previously?

Mr. HALL: I would like to ask Mr. Stewart what diagnostic symptom he finds, on examination *per rectum*, which enables him definitely to say that the condition is one of impaction of the cæcum? You often, as every one knows, when you pass your hand into the rectum in cases of colic, as it were get the hand forced back, which prevents you from feeling anything definitely, and I take it that in an impaction of this nature there would be a certain amount of flatulence which would necessarily cause such a pressing back on the hand. Was an enema injected during the treatment, and what effect had the impaction on the enemas, if given, in the way of forcing them out?

Mr. EVANS: I wish to ask whether Mr. Stewart found the calculi together, or whether they were distributed throughout the bowel. It seems to me that these calculi are hardly sufficient to cause impaction of the bowel and to cause death.

Mr. REES: It is extraordinary what you do find on *post-mortem* examination. I have in mind a horse, 18 years old, which was under my supervision at a colliery, and which had never had an attack of colic. This horse was killed at his work, and on *post-mortem* I found a calculus weighing 16 lbs. I have also noticed, with regard to this kind of stone, that they are usually in one mass.

Mr. W. R. WILLIAMS: I should like to ask Mr. Stewart what, in his opinion, is the line of treatment which should be adopted in these cases of sub-acute colic. I believe that eserine and arecoline in many cases aggravate the trouble, and I have come to the conclusion that they often do more harm than good. I believe that more of these cases would recover if one employed the old-fashioned treatment in place of the vigorous "stimulation of the bowel" treatment advocated nowadays.

The PRESIDENT: My father-in-law, the late Mr. Arthur Rogerson, had under his care 1,700 horses in London, and he regularly lost a considerable percentage of animals through bowel obstruction by calculi. In consequence, he installed a system of passing all the fodder over a magnet, with the result that the metallic substances which formed the nuclei of these calculi were withdrawn, and the number of cases of deaths from this cause was reduced enormously. It was very interesting to see the number of nails and the amount of metallic material that he found in the fodder—there were literally bucketsful. I have myself found the heads of nails in the centre of calculi, and once I found a threepenny piece. (Laughter.) In my experience, it is not always wise to use these drastic purgatives, such as eserine and arecoline, in impaction of the bowels. I know I have killed many horses with them, and I agree with Mr. Williams that the old-fashioned treatment is the best.

Mr. WRIGHT: With regard to arecoline, it always strikes me as remarkable that one can give a dog half a grain of arecoline per os without upsetting him. Ross, of Sydney, wrote an article on the use of arecoline, and said you can give a quarter of a grain per os to a 20-30 lbs. dog with tape worms, when it acts in half an hour and clears them all out, and my experience verifies this, provided the dog is well fasted.

In view of the tolerance exhibited to the drug by the dog, I am wondering if arecoline is really so drastic a purgative for the horse as is supposed.

Mr. STEWART, replying to the questions asked, said: I will start by stating that I am not an authority on the subject of sub-acute impaction of the cæcum. (Laughter.) I put the case to you, as it presented itself to me, to the best of my knowledge and ability, and I shall try to answer these questions in a similar manner. Personally, I think that the calculi were the cause of the whole of the trouble, and for this reason: Mr. Rees mentioned that he often finds these things encased and rubbing together into a mass, thus causing the facetting—in this case there was no such thing. There were eleven calculi all together, but not encased, and they caused the impaction and the inflammatory lesions found. There was no evidence of calculi anywhere else. The animal had not shown symptoms previously. I had known the horse for four years or more, and it had never been ill. On examination *per rectum*, were the symptoms diagnostic?—Well, as I have said, I have been fortunate, in one sense, in having a few of these cases, and I have at the same time been unfortunate in that they have all died. Gofton says that one of the symptoms one finds is this unaccountable diarrhœa some twenty-four hours before. In this case, the attacks happened in the forenoon. When I get that symptom I now always suspect the cæcum. When you place your hand in the rectum you find straining; that makes it difficult to palpate the bowel, but you can feel the viscus pretty high up on the right side of the median plane, and I have satisfied myself that I can feel the organ and that it is that organ which is affected. You get a sort of doughy feeling.

Taking the symptoms of the case into consideration—the onset of diarrhœa, the dull, sub-acute pain, coupled with the rectal examination—I feel fairly satisfied, when I can associate these conditions together, that it is a case of cæcal trouble.

In regard to flatulence—of course one expects a certain amount—I had used enemas, but I did not get any beneficial result from them. They were not expelled immediately, but they were not retained for any length of time.

With regard to treatment, I have tried various methods, and I will say that the first case I did not recognise as such except on *post-mortem*. In this case I tried eserine but, as I have said, I got a result which was what one might term unsatisfactory. As to the starting point of the calculi, I split one open to find the nucleus, and you will see a piece of metal in it.

A Virulent Type of Mastitis.

Mr. Hall: I am going to deal with one of my favourite subjects—mastitis. These cases of mastitis are certainly, in my experience, somewhat out of the ordinary.

Case No. 1 was a cross-bred Shorthorn heifer, due to calve within a week. She presented the following symptoms:—She was standing, disinclined to move, with her head lowered, and was drivelling at the mouth, and tears from the eyes. Her temperature was 103° F.; the extremities (horns and ears) were rather cold. The respirations were normal and she ate a little hay and cut grass, and drank chilled water freely. On examining the udder the right hind-quarter was slightly swollen and tense, but not exceedingly painful; the remaining quarters were apparently normal. On stripping the affected quarter a thick glutinous material was expressed, yellowish in colour, with an offensive smell. The other quarters contained thick glutinous material greyish in colour, with no apparent smell.

After advising treatment, I arranged to see her again in two days. On my arrival, she was on the point of delivering the calf. I gave her a little help, and a bull calf, fully developed, was delivered dead. I was informed by the owner that there had been but little alteration in the animal's condition, and this I found to be the case—except that the secretions in the good quarters were altered to more like milk—in the affected quarter the material was more in quantity, rather thinner, but still emitted the most offensive smell. The following day I again visited her. She was then on the ground, with her head resting on her flank, semi-comatose. There were profuse tears from the eyes and drivelling at the mouth. The extremities and skin were cold. The temperature was 102·4° F.; breathing slightly sterterous. The udder infection had extended to the left hind quarter, and the recently-infected quarter was swollen and hot, and excreting a thickish yellow offensive material. From the right hind quarter the same sort of thick yellowish offensive material could be stripped. The cow appeared hopeless, and she died the following morning. No *post-mortem* examination was made.

The second case was a cross-bred Friesian cow due to calve her fourth calf in three weeks.

On my arrival I found her prone, and presenting the symptoms one usually finds in cases of milk fever, but, on examining the udder, I discovered that the right hind quarter was swollen and hot, and on stripping the teat a large quantity (about a pint) of thick yellowish-brown liquid was expressed with the most offensive smell. The left hind quarter contained a more watery material, but still it had the same smell but not so pronounced. This cow died the same night.

It is rather extraordinary that during the months between July 21st and September 9th I had no less than sixteen of these cases, and the analysis was that six were in-calf cows, two were dry and barren cows, and eight were calved cows. Four of them died—a percentage of 25—and the remainder, though they recovered, were left with their udders absolutely useless in the affected quarter. Another very extraordinary fact was that in no case did I have a forequarter affected, and in no case was more than one quarter affected at the same time, though subsequently, of course, the disease did extend to other quarters, in which event it always affected the other hind-quarter. The question arose in my mind, did climatic, seasonal, or other conditions have something to do with the trouble? All the affected cows were those that were out, and July 21st was very hot with a certain amount of rain. Another factor which appealed to me also was the fact that not in any one case or on one farm did I have two animals affected—they were all individual cases on different farms. Another feature was that in each case the hind-quarter was the one primarily affected. Whether this factor will help us to arrive at the cause, whether we can look upon the time of the year as being a cause, or what were the causes, it is very difficult to say, but, leading up to that, I took the trouble to take a swab and smear from each of the affected animals and sent them up to Mr. Norman Bissett, of the Advisory and Research Department in Agriculture of the University College of South Wales, Cardiff. Mr. Bissett was kind enough to examine them for me, and his report came as rather a surprise, because I certainly thought that there was gangrenous material in those quarters, the smell being so highly offensive.

In a letter dated September 15th, he says:—"Sorry to hear of the cow's death. The vaccine is just ready, but I shall not carry on with it, as I would not care to risk employing anything but an autogenous vaccine. The cultures turned out to be absolutely pure coccal ones without any contamination whatever. The smell from the cultures was more offensive even than from the original material—it quite filled the incubator,—so it would seem that the cocci are the cause. I shall try and trace exactly which coccus it is from the cultures I have got, but would be glad to see any future case you may run up against."

Mr. Roberts: I may say that I get quite a number of these cases, and we have got into the habit of calling them "August bags," because we get so many in that month. I certainly associate this trouble with flies: I think they are its carriers. In my district I find these cases much more common on those moist, muggy, well-wooded places, and I get them frequently in maiden heifers. I sent up some material to Professor Buxton at Cambridge, and he sent me down an autogenous vaccine with, I must say, beneficial results. The only "crab" about autogenous vaccines is that in some cases one cannot get them

quickly enough. I certainly think that an autogenous vaccine is beneficial in these cases. In one or two of them I too have found the most horrible stench, and of late in such cases I have removed the teat at once. Of course that sacrifices a quarter, but in many cases I am sure that this course saves the life of the animal.

Mr. STEWART: I am sorry that there has not been rather more discussion on Mr. Hall's cases, because the condition he describes is one which is fairly prevalent, and his statements of fact corroborate what I have found. In my experience, you get the condition occurring in all quarters, but when one is called in to the case it is, as he says, in the hind-quarter that one finds it primarily. The treatment is very unsatisfactory as far as my experience goes. In one case, in which I found the cow down and one quarter affected, I realised the true nature of the condition. This cow had only calved three weeks, and when I got the message I expected to go and find a milk-fever case, and I took the oxygen cylinder with me. Seeing that the beast was suffering from toxæmia, after attending to the affected quarter, I tried the effect of oxygen. It certainly improved matters, though whether this case was complicated with milk-fever or not, I should not like to say.

A MEMBER: What precautions did Mr. Hall take in regard to measures to prevent the spread of the condition to the healthy quarters?

Mr. HALL-MASHETER: I remember one case in a maiden heifer, which occurred two years ago. She was very bad, the trouble commencing in a hind-quarter and extending to the other quarters and right up to the navel. I treated that with colloid of manganese, injected subcutaneously, and she recovered.

Mr. W. R. WILLIAMS: I can support what Mr. Hall has said. The trouble has been very common this year in our district in Glamorgan. It is a peculiar thing how you get it in certain seasons: the year 1906 was the worst I can remember. On many days of that year I had five cases. My opinion is that perhaps in some years there are some peculiar germs in the ground that are very much more active than in others, as may be illustrated by the fact that in some years one meets with a great deal of black-quarter, whilst in others cases are very few and far between. One's only chance in the affection under notice is to obtain some vaccine to use straight away, because some of the cases I have had this year have been seen one day and have been dead the next. I have tried what Mr. Roberts suggested—cutting off the teat in certain cases, and there is no doubt that it is a good procedure, as you then have a chance of syringing out the sinus, and the animal is saved, at any rate for fattening.

The PRESIDENT: I had a case in the middle of September, and I should describe it exactly as Mr. Hall has done his. I went prepared to deal with milk-fever, but on turning the cow over to inflate the other quarters I found the right hind-quarter as he has described. It was remarkable, however, that she was nibbling the ground—a peculiar nervous symptom. There were thousands of flies on that cow's udder, and I felt then that that must have something to do with the trouble. She died on the third day after I saw her. Two hind-quarters were affected.

Mr. HALL-MASHETER: I have seen it stated that you can prepare your own vaccine by taking a certain amount of the discharge, straining it through a glove after boiling the latter, and injecting about two ounces of it.

Mr. HALL, in reply, said: I am very pleased that there has been such a discussion. Removal of teat has been practised in some of my cases, and they have recovered, but in the two cases I quoted the animals were dead before one could do anything. I have also found that those cows that have a large teat lumen make much more satisfactory recoveries than those with a narrow one. The teat canal itself does not seem to be affected in the same way as one would expect with ordinary mammitis; one gets the teat standing out like a stiff finger and the whole mucous membrane of the canal suffused and thickened. In these cases it seems as though the galactophorous sinus and the tissues above the sinus were affected, and not the teat itself. In corroboration of Mr. Stewart's experience of insufflation of the teat with oxygen, or with air, I practised it with satisfactory results up to a point, but after a while gangrene of the udder set in this particular quarter, and that quarter sloughed right away, and the cow made a good recovery.

The question I wanted to bring up was the preparation of a quick vaccine, because I believe that would be the means of overcoming our difficulties better than any other. My experience is that the results of treatment have been very poor; even when the animal recovers she is a hopeless proposition as a milch cow. I give instructions to the owners that all material should be stripped into a vessel that will allow of no contamination with the floor; that antiseptic fomentations should be applied to the udder; and that directions should be given to the men which would prevent any chance of the condition affecting any other quarter, or any other cow that might happen to be lying in the byre subsequently.

CANINE CONSIDERATIONS.

Mr. WRIGHT: My first case is not of great scientific interest: it is just a curiosity.

Rupture of the Vagina. Bitch. At 6 p.m. one evening recently I was called in to examine a four-year-old terrier bitch, the owner stating on the telephone that he thought she had been poisoned. She was last seen an hour before, apparently in normal health; but was now standing with her back arched and refusing to move. On arrival the owner met me to say that perhaps she was only in season, as she was bleeding from the vagina. It appears that she had had a litter of puppies four months previously. Hæmorrhage was profuse and obviously arterial. Temperature 99·5° F. Digital examination of the vagina revealed clots of blood, and at the tip of the finger one could feel a rent in the mucous and sub-

mucous coats of the dorsal wall of the vagina. I could not ascertain definitely if the peritoneal coat was ruptured, nor could I find the extent of the wound anteriorly, as the posterior end was at the tip of the finger. A little warm saline solution was carefully introduced with a view to controlling the hæmorrhage, and a little brandy given in milk to prevent collapse. Hot water bottles were applied to the abdomen and back.

I left instructions that a little brandy was to be given every couple of hours—the bleeding having ceased. On arrival the following morning I found the bitch *in extremis*. Temperature 105° F., and continual vomition, which pointed to peritonitis. The bitch died at 10 a.m.

Post-mortem examination revealed a "clean cut" rupture of all the coats of the vagina 3in. long. A diffuse peritonitis was present. At the posterior end of the rupture (about 2½ inches from the vulval opening) the tissues against the rectum showed some tearing and considerable bruising, and here a small tuft of hair was lodged. As to the cause of the condition, I leave this, gentlemen, for your discussion.

My second case is not an individual one, but a few observations on canine distemper, a condition which is prevalent locally at the present moment. Firstly, the great variation in resistance which different breeds appear to offer. As examples, I take the Pekingese and the Alsatian. In my opinion, the mortality from distemper in Peke's over six months old is lower than in any other breed. I have just had two kennels in which there were respectively five and eight dogs, and in every case there was a complete recovery. I also find the tendency to fits and chorea uncommon in this breed, provided the dogs are over six months. In very young puppies I find the converse to be the case, and often the only symptom of the disease is the sudden onset of convulsions, which rapidly become progressive and quickly end fatally. I cite two cases. A bitch showed symptoms of distemper immediately after whelping. The attack was, however, a mild one, and bitch was practically normal again in about seven days (four other adults in kennel with distemper). The puppy showed no sign of the disease at the time and, much to my surprise, did splendidly. Seven weeks later the puppy commenced to have convulsions and paraplegia quickly set in. In the second case, the bitch showed signs of distemper a week after her puppies (a litter of five 7 weeks old) had been weaned. The puppies were carefully watched and appeared perfectly healthy and robust until seven days later, when two commenced to have convulsions and quickly died. *Post-mortem* revealed no ascarides. The remaining three puppies died under exactly the same conditions during the next few days. The mother recovered, with the exception of developing a purulent panophthalmitis which eventually necessitated removal of the eyeball.

As opposed to the Peke, the breed in which the mortality is exceptionally high is the Alsatian. Even in adult dogs the mortality may be as high as 50 per cent., whilst in puppies under six months' recoveries are the exception. Here again, I would like to quote a case illustrating the period which may elapse between apparent recovery from the disease and the onset of nervous symptoms.

The animal, an eleven-months-old male, contracted the disease early in June, and, whilst the course was somewhat protracted, it had apparently recovered by the end of that month. All discharges ceased, the animal ate well and regained the condition which it had lost during the attack.

On the 21st of September I was informed that the animal seemed to be getting weak on its hind legs, and on examination, found that condition of locomotor-ataxia with which we are all unfortunately so familiar. Three days later the first convulsion occurred, fits became progressive, and I eventually destroyed the animal.

The PRESIDENT: I am pleased to hear Mr. Wright bring forward some cases in dog practice. I feel sometimes at the meetings that veterinary surgeons are a little nervous of bringing forward dog cases. I get many of these losses in Alsatians, and I find that if these animals are attacked with distemper, they put up a very feeble resistance; they give up. The terriers show far more fight for their lives. In the treatment of distemper in dogs in general a great deal depends on comfort and the prevention of loneliness. In my opinion, Alsatians are as great cowards in disease as they are bullies in health. They are a breed I do not like, and I always try to dissuade people from buying them. In some outbreaks of distemper, you could not lose a dog if you tried, so mild is the nature of the disease; in others you lose many cases, and you sometimes find this virulent type, in which you lose many cases, alternating with the mild type from one week to another. The dog of the wealthy park owner rarely gets an attack of the virulent type.

Mr. EVANS: I too am very pleased indeed that Mr. Wright has brought forward this question, as it is of great interest to many of us. What does Mr. Wright think was the cause of the rupture of the vagina: it seems to me that it must have been due to some maltreatment. In distemper I find that in different areas you have a less violent and a more virulent form throughout the district.

The HON. SECRETARY asked Mr. Wright whether he obtained better results from cases which exhibited symptoms rapidly than from those the onset of which was insidious.

A MEMBER asked Mr. Wright if he could give the meeting any information as to the benefit or otherwise of inoculation in distemper. He had tried to prevent the disease by using some of the vaccines now sold, but he had had very little result, the animals later developing distemper. He thought that perhaps the reason that the Pekes did not get such acute attacks was that the breed had been established in this country for such a long time—a much longer time than had the Alsatian, which consequently had less resistance—and

also that the Pekes were much better protected and looked after in the early stages of the disease.

Mr. ROBERTS asked if it was Mr. Wright's experience that a mild type of distemper was more likely than was a virulent type to be followed by nervous complications. Also, had he tried the intravenous injection of hexamine for chorea and, if so, with what results ?

Mr. PERRY wished to know if Mr. Wright had tried aspirin for chorea : he believed that that was the latest idea in human practice.

Mr. HALL : I should like to quote my experience as far as the bacterin is concerned. I had a certain amount of faith in Messrs. Parke, Davis and Co.'s bacterin up to a point. I injected a large kennel of Labradors—every puppy at two months, as they came along—for a considerable period, and really I thought I had something of value, because I never had a case of distemper occurring amongst them afterwards. Then I injected two different litters of half a dozen each, and every one went down with distemper. The majority made a fairly good recovery, though some died and others developed choreic symptoms.

Mr. STEWART : In the case Mr. Wright mentioned in which the dog contracted distemper in June, apparently recovered, and then showed paralysis in September, was there anything in the symptoms shown in September to show him that they were the sequelæ distemper ? Might they not have occurred independently ?

Mr. WRIGHT (replying) : With regard to this rupture, I do not quite know what to make of it. There is a question whether or not children inflicted the injury—but if they poked a stick into the vagina it is remarkable that they should have got the right direction, as those of you will appreciate who have made digital explorations of the vagina in the bitch. In my opinion, a stick would go into the hymen, or into the fold of skin around the urethral orifice. If the theory of interference is right, the stick went in 2½ inches before it commenced its work, and then it apparently split the vaginal wall for another three inches. The case is rather a mystery to me—I do not quite know from where the hairs came and how they got there. The rectum was empty at the time. Mr. Evans had said that in different years distemper appeared to vary in virulence. I think that in human influenza that is also the case. I am of opinion that when distemper passes quickly from dog to dog in a kennel the virulence be omes exalted, because it is passed on before the puppies begin to get any immunity. Mr. Rees remarked about the development of nervous symptoms in cases of insidious and rapid onset respectively, and Mr. Roberts mentioned it as well. I have found that if a puppy is brought to you and it is twitching or swaying behind you can say with confidence that three weeks previously it had a "cold"; and the owner says, in admitting this, that he "gave it Benbow's." It is because the animal is allowed to go out with a high temperature that the serious symptoms come on. Concerning the value of inoculations, I have used Messrs. Parke, Davis' vaccine and serum. Regarding the latter, it is not a dog, but a horse serum—from horses immunised against the *Bacillus bronchisepticus* of Ferry. I have given 5 c.cs. of it two or three times a day, but I have not found it to have the slightest effect in the prevention of canine distemper. Concerning the use of the vaccine, also, I have found dogs to develop distemper afterwards. Moreover, unless the results are sustained, they are not worth anything, in my opinion. (Hear, hear.) It is a great pity that the inclusion of veterinary biological products in the Therapeutic Substances Bill was not secured. Everybody has a biological product nowadays. Vaccines have rather fallen into disrepute, because nobody knows what is in them. One gentleman remarked that he thought that Pekes offer stouter resistance because the breed has been long established in this country. I certainly think that that has something to do with it. That is well exemplified in the human subject in tuberculosis : if you take North American Indians who have never had tuberculosis into a town they die within two years from tuberculosis, and I think that in the Alsatian and the Chow, which are comparatively new to this town life, this factor plays a great part in the great mortality which obtains amongst them in distemper. Mr. Roberts asked if I had used hexamine intravenously in the treatment of the nervous symptoms and sequelæ of distemper. I think I am right in saying that hexamine has been found very useful in the treatment of meningitis in the human subject. Hexamine, in an acid medium, breaks up into ammonia and formalin, and it is the formalin that has the antiseptic action. I have given large doses *per os*, but I have not found it to have any influence. Mr. Perry spoke of aspirin. I have great faith in aspirin, but it behoves one to get the best, because there is a flood of rubbish on the market. I find it advisable to get aspirin tablets coated ; if not, the drug upsets the stomach.

Mr. PERRY exhibited to the meeting the Bowden wire embryotome, already described in the *Record* as shown by Mr. Richard Hudson at a recent N.V.M.A. Congress; also a patent non-slip shoe, the cost of which he stated to be only 3s. a set.

THE DOUBLE INTRADERMAL TEST.

At the invitation of the President, Mr. HOWARD JONES, Chief Veterinary Inspector to the Glamorgan County Council, addressed the meeting. In the course of his remarks Mr. Jones said he had employed the double intradermal tuberculin test a good deal since Professor Buxton demonstrated its use at Edinburgh last year. With the exception of only one case, he had found it most most accurate both for the negative and positive results. He was bringing the case in question forward because it was rather disappointing. It was a pedigree Friesian cow that was showing almost every possible evidence of being badly affected with tuberculosis, large numbers of bacilli being found in sputum and milk : they were there in very large numbers. For the purpose of demonstrating the value of the test, he summoned some rather influential

farmers and proceeded, as he thought, to show them the effect of the test upon the cow. She gave no reaction whatsoever. (Laughter.) He made a *post-mortem* examination, and there was miliary tuberculosis of both lungs, every one of the mesenteric glands was calcified, there was distinct tuberculosis in three quarters of the udder, and the liver, kidneys and pleura showed it clearly. He had described the case to Prof. Buxton and asked f he had had similar experience. Prof. Buxton replied that they have now had three instances, including this one, of failure to obtain a marked reaction to the double-intradermal test in animals in an advanced state of tuberculosis. They appeared to be capable of becoming desensitised to such extent that even local reactions are not produced. Prof. Buxton also pointed out that, relatively speaking, this occurred in a very small percentage of cases.

In the course of subsequent discussion, Mr. WRIGHT asked if Mr. Jones thought that the intradermal test had proved itself superior to the subcutaneous test. Mr. Austin said that he had that week tested a herd of eighty-four animals varying from 8—9 years old to yearlings, and twenty-five reacted. He tested them with the intradermal and the ophthalmic tests. Eight cows and two yearlings showed a marked reaction to the intradermal sensitising dose and the rest, making up 1 to 25, reacted to the second dose. All except two showed a marked reaction to the ophthalmic test. In his opinion, the intradermal test was far better than the subcutaneous. He had been carrying it out since the demonstration at Cambridge, and he thought, from what he had found on *post-mortem* examination, that it was quite satisfactory. The subcutaneous test invoked a lot of worry and trouble, and one was never sure that there would not be a temporary rise of temperature from other causes.

Mr. HOWARD JONES said that he was sorry that his experience of the intradermal test had not been sufficient to enable him to make a comparison between it and the subcutaneous test, but so far as he had gone the results of the intradermal had proved to be correct on *post-mortem* examination with the single exception of the case he had related to them.

The meeting concluded with a vote of thanks to the President for his conduct in the Chair, but before the members separated they enjoyed the hospitality of the Cardiff members at an excellent tea.

W. D. REES,

Hon. Secretary.

R.C.V.S. OBITUARY.

RENEHAN, Thos. F., Johnstown, Co. Kilkenny. Graduated Glasgow, 23rd December, 1891. Died 11th October, 1926.

SMITH, F. W. H., Ministry of Agriculture. Graduated London, 14th December, 1892. Died 26th May, 1926.

North of Scotland Division.

MEETING AT ABERDEEN.

The half-yearly meeting of this Division was held in the Marischal College, Aberdeen, on Saturday, September 4th, 1926, when the President, Mr. James Anderson (Keith) occupied the Chair.

The following members were also present—Messrs. Brown (College of Agriculture), Beattie (Longside), Cumming (Peterculter), Crabb (New Aberdour), Clerk (Stonehaven), Drennan (Aberdeen), Grant (College of Agriculture), Howie, jun. (Aberdeen), Howie (Alford) Hon. Secretary, Murray (Cullen) McAllan (Aberdeen), McVean (Craigellachie), Niven (Inverurie), Robson (Laurencekirk), Sievwright (Tarland), Wallace (Aberdeen), and Hepburn (Aberdeen).

Visitors.—Mr. George Moir (late of Perak), and Messrs. Murray and Emslie.

New Member.—Mr. D. N. Walker (New Machar), was proposed for membership by Mr. HOWIE, and seconded by Mr. BROWN, and elected.

The minutes of the last meeting as they appeared in the *Record* were adopted.

R.S.I. DELEGATE'S REPORT.

Mr. ANDERSON submitted his report as delegate to the Congress of the Royal Sanitary Institute, in the following terms:—

At our last meeting you decided that I should attend the Royal Sanitary Institute Jubilee Congress as delegate from the North of Scotland Division of the N.V.M.A.

The Congress opened on Monday, 5th July, in the Central Hall, Westminster, and the President of the Institute, His Grace the Duke of Northumberland, held a reception of the delegates prior to a public luncheon in the Hotel Victoria, whilst the inaugural address was given in the Guildhall in the afternoon by the Right Hon. Neville Chamberlain, P.C., M.P., the Minister of Health. The National Temperance League gave a tea and reception at the Cannon Street Hotel the same afternoon, and a visit was paid in the evening by the delegates to the Royal Sanitary Institute and Parke's Museum, where they were received by Vice-Presidents and the Chairman and members of the Council of the Institute. Altogether, Monday was a day full of varied and interesting events.

It was unfortunate that the Minister of Health could not deliver his inaugural address in person. After being installed as President of the Congress, he had to leave for the House of Commons and his address was read by one of his secretaries. In his address he reviewed the progress made in the science of Public Health and Sanitary Engineering in the fifty years since the Institute was formed in 1876. His remarks showed he was in full sympathy with those who are working towards a solution of the health problems of the present and future.

The succeeding days were all fully taken up by papers on various subjects relating to Sanitary Science, Preventive Medicine, Engineering, etc., etc., and on

Thursday and Friday we had the veterinary inspectors' meetings.

The Veterinary Inspectors' Section was fortunate in having as its president, Alderman W. Phené Neal—a man who has a great interest in the veterinary services, and who has done a deal of work on behalf of the veterinary profession. Colonel T. Dunlop Young, Veterinary Inspector, City of London, read a very interesting paper, illustrated by lantern slides, on "The Work of the Veterinary Officer from the Pampas of Argentina to Smithfield Market." The paper was discussed very fully, a good deal of importance being paid to the effect of freezing and chilling on the food value of meat. You will have read a report of this meeting in *The Veterinary Record*. On Friday, Professor J. Basil Buxton, of the Institute of Animal Pathology, University of Cambridge, read a paper on "The Double Intradermal Tuberculin Test in Cattle and the Potency of Tuberculin." This very interesting paper, although it appealed more to the purely veterinary side of the meeting, was also very fully discussed.

There were numerous outings and social functions, of all of which full advantage was taken by the delegates.

During the Congress, 83 addresses, lectures and papers were read at 19 meetings and the attendance reached about 1,800.

I wish to thank you very much, gentlemen, for giving me the opportunity of attending what was a most interesting and historic Congress. That the veterinary profession is coming into its place in matters pertaining to public health can be seen from the number of delegates from other sections who attended the veterinary meetings and took part in the discussions. They were all interested in what we were doing, evidently having been fired with enthusiasm when at the Edinburgh Congress.

Mr. Anderson was cordially thanked for his attendance and report.

The SECRETARY asked the leave of the meeting to have the date of the annual meeting changed from August to January, to bring it into harmony with the wishes of the N.V.M.A. in regard to the appointment of representatives to the Council of that body. The meeting concurred.

Mr. WALLACE then presented his paper, "Parturient Hæmoglobinuria of Bovines."

[This paper, together with the discussion which followed, appear elsewhere in this issue.—ED.]

Mr. ANDERSON proposed a hearty vote of thanks to Mr. Wallace for preparing such an excellent paper. Mr. BROWN, in seconding, said he hoped that he did not give the impression that piroplasmic red water was prevalent. That was not the case—it was only found in certain localities in certain seasons.

The vote of thanks was carried with acclamation.

Messrs. Drennan and Brown agreed to provide material for the next meeting.

A vote of thanks to the president brought a very successful meeting to a close.

GEORGE HOWIE,
Hon. Secretary.

Eastern Counties Division.

OPERATIVE DEMONSTRATIONS AT NORWICH.

The Autumn Meeting of the Eastern Counties Division was held at Mr. Harry P. Standley's Veterinary Infirmary, Orford Place, Norwich, on Thursday, 30th September, 1926. The meeting opened at 11.30 o'clock in the morning with an operation on a cart gelding (sent in by Mr. M. Bray, of Docking) for an enlargement of, and chronic suppuration from, the bones of the face. This operation was performed by the President, Capt. P. R. Turner, of Bury St. Edmunds, and the case proved to be very interesting, as the left frontal and superior maxillary sinuses were almost completely occluded with adventitious bone. The prognosis of the case was unfavourable.

The next operation was one of fistulous withers, and was performed by Mr. W. Waters, of Halstead. This case revealed considerable necrosis of the ligamentum nuchæ to the front of the spinous processes of the dorsal vertebræ, there being little or no disease of the processes themselves. The prognosis was favourable.

A very interesting case was next forthcoming, that of an injured rib in a cob. This operation was performed by Mr. H. P. Standley, assisted by Mr. W. Shipley. The history of the case was that some months ago this cob was attacked by a boar, and severely injured in the flank, and in the region of about the thirteenth or fourteenth rib. With ordinary antiseptic treatment the wounds healed, only in a short while to re-open with considerable suppuration. The case was then operated upon, and a large portion of splintered rib removed. The wound healed, and again re-opened, suppurated, and was re-operated upon, another considerable portion of the rib being removed, since when there had been a costal fistula with slight discharge, which resisted all attempts at treatment.

On examination, the fistula was found to be of considerable length to some extent over twelve inches, apparently running upwards along the visceral surface of the rib. It was decided to resect a portion of the rib, when it was found that the rib was very much enlarged and almost round, about 1¼ inch in diameter. At the point of entry of the fistula to the rib, there was a callous formation about the size of half a billiard ball on the visceral surface of the rib, with strong adhesions to both the visceral and parietal pleura. The fistula itself did not continue through the rib, but up the centre of it for a greater distance than the length of any probe available. It was decided to remove about one foot of the rib, when it was discovered that the fistula continued on, probably to head of the rib. It being considered that further operation would be of no avail, prognosis was declared to be unfavourable.

An interval for lunch was followed by an operation for contracted tendons in the near hind leg of a vanner mare. This operation was performed by Mr. Standley.

Then followed a typical case of a "Quidder", there being large interdental spaces with food pockets between the fourth, fifth, and sixth lower molars on both sides. The fifth molar was extracted by Mr. H. P. Standley, Junr., of Wymondham, assisted by Mr. S. E. Hill, of East Rudham.

The members present then adjourned to Mr. Standley's house for the business part of the meeting, during which Mr. Standley further demonstrated his hospitality by providing tea.

The President, Capt. P. R. Turner, occupied the chair.

The Minutes of the last meeting, as appearing in the *Veterinary Record*, were taken as read.

A vote of condolence was passed in consequence of the death of Mr. E. H. Leach, of Newmarket. Mr. Leach will be greatly missed, not only by the Eastern Counties Division, but by the Veterinary Profession and all those interested in blood-stock.

The Secretary was instructed to write to the bereaved, expressing the Society's sympathy.

New Members: The following gentlemen were elected members of the Society: Messrs. T. F. Tunney and W. F. Howes, both of Norwich, and W. J. Bambridge, of Newmarket.

A discussion on the operations performed followed, and Mr. Gooch discoursed on some peculiar cases in his experience, including that of a cockatoo, which, after thirty years of solitary confinement, continued its solitude by confinement with five eggs.

It was decided to hold the Annual Meeting at Ipswich in February, 1927.

Mr. G. W. Kerry, of Newmarket, had written expressing a wish to resign, as he was so often unable to attend the meetings, but on this being put to the meeting, it was unanimously decided to ask Mr. Kerry to continue his membership, and to express the hope that he would be able to attend the next meeting.

The following members attended this meeting:—Captain P. R. Turner (Bury), Messrs. E. A. Hudson (Barrow), H. P. Standley, Junr. (Wymondham), Horace F. Downe (Diss), V. Boyle (Norwich), S. E. Hill (East Rudham), Harry P. Standley (Norwich), C. C. Nesling (Framlingham), J. F. Thurston (Framlingham), W. H. Wortley (Bungay), F. L. Gooch (Stamford), Harry V. Low (Norwich), W. F. Loveless (Bressingham), Wm. Turtill (Wickham Market), W. Waters (Halstead), D. Blyth (Braintree), H. Buckingham (Norwich), J. M. Currie (Lowestoft), W. F. Howes (Norwich), T. F. Tunney (Norwich), and W. Shipley (Yarmouth).

Apologies for absence were received from Messrs. Horace L. Roberts (Ipswich), T. G. Heatley (Woodbridge), P. J. Welch (Saffron Waldron), P. Turner (Ixworth), G. W. Kerry (Newmarket), W. L. Stewart (Cambridge), Captain V. Pride-Jones (Newmarket), Messrs. A. P. Burgon (Haverhill), E. A. Burgon (Haverhill), H. J. Loveless (Ipswich), and Major F. T. G. Hobday (London).

W. SHIPLEY,
Hon. Secretary.

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

Nov. 24th—Meeting of the Western Counties Division at Cornwall.
Nov. 26th—Meeting of the Royal Counties Division at 10 Red Lion Square, London, W.C.
Nov. 27th—Meeting of the West of Scotland Division at Glasgow.
Nov. 27th—Meeting of the North of England Division at Darlington.
Nov. 30th—Changes in address for Register to be notified to Registrar.
Examination fees payable.
Dec. 2nd—Meeting of the Central Division at 10 Red Lion Square, W.C.
Dec. 7th—Membership Examinations (written).
Dec. 9th—Membership Examinations (oral).

Practitioner's Death in Level Crossing Smash.

We deeply regret to record the death, under tragic circumstances, of Mr. William Bannatyne, M.R.C.V.S., of Haddington. It appears from newspaper accounts of the fatality that Mr. Bannatyne, who was 74 years of age, was caught by a passenger train while motoring across the railway in the vicinity of Gullane, East Lothian, and killed, his car being carried over 100 yards and completely wrecked.

Mr. Bannatyne had attended a sale at Saltcoats Farm, Gullane, in the forenoon, and was motoring back to Haddington, when the tragedy occurred.

The Poisons and Pharmacy Acts.

The Lord President of the Council has appointed a Committee consisting of E. A. Mitchell-Innes, Esq., C.B.E., K.C. (Chairman), L. G. Brock, Esq., C.B., Sir Malcolm Delevingne, K.C.B., F. W. Gamble, Esq., Sir William M. Graham-Harrison, K.C.B., Sir Donald McAlister, Bt., K.C.B., M.D., E. T. Neathercoat, Esq., C.B.E., Colin Smith, Esq., G. Stubbs, Esq., C.B.E., F.I.C., Sir William H. Willcox, K.C.I.E., C.B., C.M.G., M.D., F.R.C.P., A. E. Young, Esq., together with M. D. Perrins, Esq. (Home Office), and Dr. E. W. Adams, O.B.E., M.D., (Ministry of Health), Joint Secretaries to the Committee, to consider and report whether any modifications are necessary or desirable in the Poisons and Pharmacy Acts—

(1) in regard to the conditions relating to the sale of poisons;
(2) in regard to the procedure for the modification or extension of the schedule of poisons to which the Acts apply;
(3) in the system of making and enforcing Regulations in regard to the keeping, selling and dispensing of poisons;
(4) in regard to the Central Authority for the purposes of the Acts; and
(5) in regard to any other matters to which the attention of the Committee may be drawn.

The Committee have decided to take evidence on matters within their terms of reference. Any person, association or firm wishing to give evidence or place their views before the Committee should communicate as soon as possible with Mr. M. D. Perrins (Joint Secretary), Home Office, Whitehall, S.W.1. The Committee will enquire generally into the existing machinery regulating the sale (retail and wholesale), keeping, distribution and supply of poisons;

any consideration of proposals for the inclusion in or exclusion from the Schedule of Poisons of any specific substance is *not* held to fall within the Committee's terms of reference.

Erratum: In the report of the "Trojan Bull" case, p. 1027, col. 1, line 5, for "phalanx" read "pharynx."

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.
All correspondence must bear the name and address of the contributor for publication.
The Editor does not hold himself responsible for the opinions of his correspondents.

The "Trojan Bull" Case.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—The case of "Terling Trojan," reported in to-day's *Record* is very interesting, but I am amazed at some of the evidence given. That a large Friesian bull can swallow a piece of wire 21 inches long I am convinced is quite possible. One or two of the witnesses seem to think that all cases of foreign body in the rumen are accidental—evidently they have never met the animals (frequently seen in herds) that will deliberately chew and try to swallow anything they can get down the gullet. They will pick up a piece of iron, a bone, or even a piece of wood and, with their nose straight up in the air, twist and champ at it, evidently trying to get it back into their throat. They will struggle sometimes half-an-hour and if not successful will drop it out, and try again later. When asked the reason by an owner, we murmur, "indigestion," "depraved appetite" or something, but, strange to say, those animals are generally well conditioned, showing no signs of digestive trouble. However, as this craving only appears at intervals in individual animals, it appears as though the reason given may be correct.

As reported, one witness says: "If it had been hæmatoma there would have been no swelling. If it had been rupture the pain would have been acute, but there was no pain." I would have said the reverse. How can you have hæmatoma without swelling? When do you have pain in a rupture, unless when this is strangulated? Seeing that this was an abscess, I would have expected pain.

Abscess formation outside the abdomen is of common occurrence in cases of a foreign body in the rumen and it is difficult to trace the connection. In every-day practice it generally suffices to satisfy the owner to tell him that probably a second piece has travelled in that direction, although a careful search fails to find any trace of it.

The fact that the wire was bright when removed was no evidence that it had been recently introduced into the stomach. Only quite recently I took three new horse shoe nails, untarnished, from a cow's stomach, and she had carried them over six months—how much longer I have no idea.

About a month ago I had to order the immediate slaughter of a cow for stomach disorder. In her rumen was found a piece of wire netting over six inches wide and over twelve inches long. The only theory I could advance was that it had been rolled up when she swallowed it and the movement of the stomach had opened it out.

Some years ago I attended a cow and advised her destruction because of a foreign body in her stomach. The owner would not consent, and she lived three years after and had two more calves. In the interval, I repeatedly attended her for stomach trouble expecting each attack to be her last. However, she did die and the *post-mortem* showed a large iron spike nail, nine inches long, through the wall of the rumen and stuck by the head. It pierced the rumen in its upper third just under the lumbar vertebræ and not in the floor, as one would have expected with a heavy nail.

The experiments with the iron in the mouths of cattle teach nothing. I doubt whether, if one procured animals guilty of swallowing such things, they could be made do it to order, even if enticed with treacle dressing.—Yours faithfully, WM. A. CAMPBELL.

Boroughbridge, Yorks.
13*th November*, 1926.

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TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—Congratulations on publishing the *most* interesting excerpt of evidence of the "Trojan Bull" case.

Personally, I must say I agree almost entirely with the "Wilson" side of the evidence. What an interesting thing it would be, "if it were possible," to have a vote of the whole profession on such cases as this.—Yours faithfully, J. R. BAXTER.

Downington House,
Lechlade, Glos.
14*th November*, 1926.

The Editor acknowledges the receipt of the following:—
Annual Report of the Civil Veterinary Department, United Provinces, for the year ending 31st March, 1926. Communications from Captains R. Bryden (London), and H. A. Idenden (Palestine); Messrs. R. A. Edwards (Rochester), and J. D. Pottie (Greenock).

National Veterinary Medical Association of Great Britain and Ireland.

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All communications relative to the literary side of the Veterinary Record must be addressed to the Assistant Editor, "Veterinary Record," 10 Gray's Inn Square, W.C.1

Established 1821

Telegrams: "Lithography, Birmingham."
Telephone: Central 516 (3 lines) Birmingham.

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WORKS: 155/171 EDMUND STREET, and 14/18 LIVERY STREET, BIRMINGHAM.
LONDON OFFICE: 314 GRAY'S INN ROAD, KING'S CROSS.